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**Theorizing the ‘social’ in social media:**  
**The role of productive dialogs for collaborative knowledge creation**

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**Theorizing the ‘social’ in social media:**  
**The role of productive dialogs for collaborative knowledge creation**

Knowledge creation is particularly important for organizations in order to innovate and secure their existence over time (e.g., Mount & Garcia Martinez, 2014; Nonaka & von Krogh, 2009; Von Krogh, 2012). Recently, organizations typically strive to create new knowledge by setting up social media platforms (Razmerita, Kirchner, & Nabeth, 2014). Hence, there is growing scholarly interest in the role of social media, i.e. digital technologies of the Web 2.0 generation (Leonardi & Vaast, 2017) in collaborative knowledge endeavors (Hemsley & Mason, 2013; Kallinikos & Tempini, 2014; Leonardi & Vaast, 2016; Neeley & Leonardi, 2018; Voigt & Ernst, 2010; Wagner, Vollmar, & Wagner, 2014).

Yet, the majority of social media studies focuses on knowledge sharing (e.g., Majchrzak, Faraj, Kane, & Azad, 2013; for recent overviews, see Leonardi & Vaast, 2016; Panahi, Watson, & Partridge, 2013). In particular, scholars highlight that social media facilitate knowledge sharing behavior in organizations in a unique manner due to their unique affordances, i.e., the “perceptions of an objects’ utility” (Treem & Leonardi, 2012, p. 145), which cover visibility, editability, persistence, and association for the ‘object’ social media (Leonardi & Vaast, 2015; Treem & Leonardi, 2012). These scholars further speculate that the affordances of social media might also contribute to knowledge creation (Leonardi & Vaast, 2017).

Not drawing on the affordances of social media in particular, few initial studies focus directly on the role and function of social media for collaborative knowledge creation purposes (e.g., Hemsley & Mason, 2013; Voigt & Ernst, 2010; Yates & Paquette, 2011). These studies mostly discuss social media-based knowledge creation from a technological point of view, that is, they herald the information transmission capabilities of social media. In this sense, they also draw on a rather technological understanding of knowledge and conceptualize it as something that is easily stored and transmitted through social media (for an exception, see Wagner et al., 2014).

However, knowledge creation theorists have highlighted the importance of social interaction and dialog for the creation of new knowledge in ‘traditional’ settings (Nonaka & Takeuchi, 1995; Tsoukas, 2009a; Von Krogh, Ichijo, & Nonaka, 2000). They suggest that knowledge creation emerges from communicative interactions (Håkanson, 2007; Nonaka & von Krogh, 2009; Tsoukas, 2009a) and call for the study of these social interaction in ‘new’, digital forms of collaborative knowledge creation (Chalkiti & Sigala, 2008; Faraj, von Krogh, Monteiro, & Lakhani, 2016; Johnson, Safadi, & Faraj, 2015; O’Mahony & Lakhani, 2011; Prasarnphanich & Wagner, 2009). Hence, although extant social media research contributes to our understanding of knowledge creation in social media from a technological perspective, we lack

a theoretical understanding of the social dynamics that enable knowledge creation processes in social media. A theoretical understanding of the ‘social’ that is constitutive of *social* media (Kaplan & Haenlein, 2010) will ultimately contribute to an advanced understanding of social media-based knowledge creation. It will further enable us to debate how organizations can nurture the creation of new knowledge. Hence, this paper aims to address the following research question: How do the social dynamics of social media-based interactions contribute to collaborative knowledge creation?

Answering to this question, we draw on a dialog theory of knowledge creation (Baralou & Tsoukas, 2015; Tsoukas, 2009a, 2009b). Given that prior research has shown that social interactions in social media often base on dialogs (Glozer, Caruana, & Hibbert, 2018), this theory deems particularly suitable to discuss how social media-based interactions create knowledge. Particularly, it suggests two different types of dialogs: *productive and unproductive dialogs*. Importantly, only productive dialogs allow for organizational knowledge creation because they base on *relational engagement*. Relational engagement refers to individuals taking joined responsibility for a task, establishing high-quality relationships and a shared language. By contrast, unproductive dialogs solely facilitate individual knowledge creation, based on calculated engagement. When individuals engage in a calculated dialog, they only engage in a dialog for self-serving reasons, engage limitedly in collaborative behavior, and the dialogs remain fragmented and parallel (Tsoukas, 2009a).

Based on the dialogic knowledge creation theory, we argue that only when individuals engage in productive social-media dialogs, they can create organizational knowledge. More specifically and based on the distinction between calculated and relational engagement, we discuss how the affordances of social media (visibility, editability, persistence, association) contribute to the emergence of productive dialogs, and thus, to collective knowledge creation. In particular, we show how each of the affordances facilitates calculated and relational engagement. We find that while all affordances contribute to collective knowledge creation, editability and persistence are the main affordances that facilitate a relational engagement. This is because these affordances allow participants in social media to develop a shared language and understanding about certain issues, which, in turn, allows them to co-create knowledge.

Based on these findings, we contribute to extant social media research in two main ways: First, we contribute to social media research, particularly to the debate on social media affordances. This debate currently lacks an understanding of how social media affordances enable the creation of new organizational knowledge. We show how the particular social media

affordances contribute to collective knowledge creation in general, and, that not all affordances contribute to knowledge creation in the same way. We find that collective knowledge creation is mainly supported by the social media affordances editability and persistence.

Second, we also contribute to the social media studies that rely on a rather functional understanding of the process of knowledge creation. Drawing on a dialogical theory, we suggest that social media based knowledge creation depends less on the functionalities of these technologies, but rather on the social interactions in which people engage through them, and which intentions guide people in their utility of these technologies. In this sense, our study suggests a sociologically informed conceptualization of knowledge, which underpins the *social* dynamics through which new knowledge emerges in social media. Additionally, these findings may also contribute to research on new forms of organizing knowledge creation, such as research on online communities (e.g., Faraj et al., 2016; Füller, Jawecki, & Mühlbacher, 2006; Mahr & Lievens, 2012). Our study extends this debate by revealing the particular elements of a relational engagement between participants of a dialog. This might help scholars to get a better understanding of the dialogical conditions under which knowledge conversion processes take place in the digital context.

We structure the paper as follows. First, we review the extant social media research concerned with organizational knowledge processes regarding how it attends to the role and function of social media for organizational knowledge processes, and particularly for knowledge creation processes. Then, we introduce the dialogic knowledge creation theory and apply it to the social media context. Finally, we discuss the implications of our paper for social media research in general, and the social media affordance debate in particular. We conclude with debating the implications of our study for organization practice.

### **Literature Review: Social media based knowledge processes**

There is growing scholarly interest in the role of social media for organizational knowledge processes (Hemsley & Mason, 2013; Kallinikos & Tempini, 2014; Leonardi & Vaast, 2016; Neeley & Leonardi, 2018; Voigt & Ernst, 2010; Wagner et al., 2014). However, most social media studies focus on the role in and impact of social media on collaborative knowledge *sharing*.

Generally, social media are stressed as particularly useful for knowledge sharing in organizations because they allow organizational members to communicate and collaborate directly and publicly with each other (Majchrzak, Faraj, Kane, & Azad, 2013; Leonardi & Vaast, 2016; Panahi, Watson, & Partridge, 2013). As Leonardi and his colleagues have shown,

social media afford in unique ways behavior that makes these technologies particularly suitable for organizational knowledge sharing (Leonardi, 2007, 2017; Leonardi & Vaast, 2016; Neeley & Leonardi, 2018; Treem & Leonardi, 2012). Generally, the concept of affordances refer to the socio-material entanglement between the material functionalities of these technologies and how individuals use these technologies (Treem & Leonardi, 2012). The affordances of social media enable individuals to achieve their purposes or goals. While social media may provide all users with the same functions, they provide different affordances to different people, and thus can produce different outcomes; they “are constituted in relationships between people and the materiality of the things with which they come in contact” (Treem & Leonardi, 2012, p. 146).

Leonardi and his colleagues suggest that social media entail the following key affordances: (1) Visibility, i.e. that social media make knowledge visible to other users; for example, by displaying texts and graphics, status updates of personal profiles, or displaying the number of people who bookmarked the same content. Visibility not only unearths knowledge that has been previously ‘invisible’, but also facilitates sharing of ‘who knows whom’, and ‘who knows what’. (2) Editability, i.e. that social media also make it easy for people to edit information in an asynchronous way; for example, by modifying or deleting content that has already been published. (3) Persistence refers to how social media make large amounts of knowledge accessible over time. The access to historic records can create a common ground for interactions. Thus, social media contextualize knowledge and thus enable a better understanding of knowledge. (4) Association, i.e. that social media allow people to associate with each other, or to associate themselves to particular content and information. Hence, these technologies enable the creation of new associations, or improve existing ones, and even developing associations to others beyond the intention of the initial interaction. Thus, in organizations these affordances allow organizational members to share knowledge around processes of organizing (Neeley & Leonardi, 2018).

Other streams of research also discuss social media as particular useful tools to share knowledge. In strategy research, for example, studies emphasize that social media enable organizations to share knowledge with a broader range of internal and external actors, for example to provide feedback on strategic issues (Stieger, Matzler, Chatterjee, & Ladstaetter-Fussenegger, 2012; Whittington et al., 2016). Similarly, other studies found that social media enable the transfer of information and opinions on organizational issues, such as corporate social responsibility (e.g., Fieseler, Fleck, & Meckel, 2009; Whelan, Moon, & Grant, 2013), or product development (e.g., Hanna, Rohm, & Crittenden, 2011). Studies on open innovation echo these insights: Social media contributes to the development of innovations by facilitating

knowledge sharing among various actors (Mount & Garcia Martinez, 2014; von Hippel & von Krogh, 2006).

While social media are mainly discussed as knowledge sharing tools, scholars recently speculate on their potential for knowledge creation (Leonardi & Vaast, 2016; Treem & Leonardi, 2012; Leonardi & Bailey, 2016), thereby drawing a distinction between sharing existing knowledge and creating new knowledge (Nonaka & Takeuchi, 1995; Nonaka & Toyama, 2003; Nonaka, von Krogh, & Voelpel, 2006). It is argued that although knowledge sharing is important for the creation of new knowledge, knowledge creation requires a social process (Foss, 1996; Nonaka et al., 2006; Tsoukas, 2009a). Consequently, Leonardi and Vaast (Leonardi & Vaast, 2017) point out: “Most studies of social media’s role in organizational knowledge-related processes have been quite limited”, thus, knowledge creation in social media “needs much more study in addition to more traditional studies of knowledge sharing”.

In response to this call, some studies have started to discuss the role and function of social media for organizational knowledge creation (Chalkiti & Sigala, 2008; Culnan, Mchugh, Zubillaga, Uarterly, & Xecutive, 2010; Hemsley & Mason, 2013; Janhonen & Johanson, 2011; Kallinikos & Tempini, 2014; Voigt & Ernst, 2010; Wagner et al., 2014; Yates & Paquette, 2011). These studies suggest that social media are also suitable for the creation of knowledge, because they enable the rapid diffusion of information amongst a large number of people. Kallinikos and Tempini (2014), for example, examine how patients use social media within a hospital to make their medical information available to others, and to connect with other patients and medical experts by comparing experiences with medical phenomena. In a similar vein, Hemsley and Mason (2013) argue that social media facilitate knowledge creation by enabling the exchange of information amongst various actors. Likewise, Culnan and her colleagues (Culnan et al., 2010, p. 249), for example, propose that social media “are a type of transaction processing system” that enable organizations to exploit the knowledge that their consumers can now directly share with them.

Although the preceding studies have emphasized the potential of social media to enable organizational knowledge creation, the valuable insights that they offer mostly rely on a technical view on knowledge creation that assumes that knowledge can be easily transferred, collected and distributed (Brown & Duguid, 1991). In this sense, they reduce knowledge creation to a technology-enabled information collection and distribution process. However, a technological perspective on knowledge creation in social media does not acknowledge the *social* dynamics through which new knowledge emerges. More specifically, “knowledge

creation involves the creation of new concepts through dialogue and the management of conversations” (Tsoukas, 2009a, p. 941). In this sense, various scholars have emphasized the importance of conversational or dialogic interaction for knowledge creation (Baralou & Tsoukas, 2015; Håkanson, 2007; Nonaka & Takeuchi, 1995; Tsoukas, 2009a). Yet, so far, we lack a theoretical understanding of the way in which dialogic interactions in social media contribute to organizational knowledge creation. We will illustrate a dialogic perspective on knowledge creation in the next section, before we discuss its application in the context of social media.

### **A dialogic approach to knowledge creation**

In this paper, we follow a dialogic approach to organizational knowledge creation (Tsoukas, 2009a, 2009b). Generally, a dialog is a joined activity of a group of two or more people taking turns in articulating themselves. In this sense, a dialog is a highly interactive process. In contrast to other knowledge creation theories (Nonaka & Takeuchi, 1995), a dialogical approach to knowledge creation highlights the special role of dialogs for organizational knowledge creation. Given the importance of conversational interaction for knowledge creation in general (Carlile, 2004; Håkanson, 2007; Nonaka & von Krogh, 2009; Nonaka et al., 2006) and the dialogic nature of social interactions within social media settings in particular (Glozer et al., 2018), this theory proves itself particularly relevant for investigating collaborative knowledge creation in social media. More specifically, the dialogical approach to knowledge creation is particularly valuable, as it outlines the particular social mechanisms through which a dialog creates collective knowledge. Hence, it allows us to debate in detail how different modes of interaction lead to different knowledge creation outcomes in social media.

Although the dialogical approach to knowledge creation was initially developed in the context of face-to-face dialogs, Tsoukas and colleagues have argued that the dialogic approach is also applicable to digital contexts (Baralou & Tsoukas, 2015; see also Tsoukas, 2009b). More specifically, they argue that besides dialogs between individuals, new digital technologies create ‘quasi-dialogs’ between individuals and ‘invisible’ dialog partners, i.e. individuals that are not part of the main dialog and artifacts. In the digital context, these artifacts and invisible dialog partners can also trigger others to rethink and re-interpret existing knowledge, enable them to develop new distinctions, and thus co-create new knowledge. As the main mechanisms and elements of the dialogic approach remain the same in digital contexts, however, we will not draw on the distinction between dialogs and quasi dialogs in the following.

In his seminal work, Tsoukas (2009a) argues that individuals draw distinctions in their utterances to create new knowledge. More specifically, he classifies various types of

distinctions that individuals can draw on, such as conceptual combination, expansions or conceptual reframing. These distinctions create new knowledge as individuals use them to put two existing concepts in relation to each other, to articulate existing ideas or concepts in a new and different situation, or put a given topic in a different analytical category and thus challenge existing views on a given task. Tsoukas (2009a) further differentiates between productive and unproductive dialogs and argues that drawing distinctions can only lead to new organizational knowledge when individuals engage in a productive dialog. In the following, we elaborate on this distinction.

According to Tsoukas (2009a), a productive dialog comprises four elements: First, a productive dialog grounds in *collaborative emergence*, meaning the participants accept the dialog for its progressing nature. By building on each other's on going utterances, participants develop a shared language. Thus, the dialog remains without a pre-emptively defined outcome. This means that the outcome emerges from continuous interactions and can change accordingly. Second, a productive dialog is also marked by *constrained novelty*. Participants contribute new input to the dialog, but their contributions are constrained by constantly emerging frames that influence future contributions. As participants share these frames, a productive dialog becomes a coherent interaction. Third, in a productive dialog, emerging frames only change little by little. Thus, a productive dialog allows only for *incremental emergence* of new knowledge. Forth and finally, in a productive dialog, utterances enable the creation of shared situations. *Indexical creativity* allows participants to create utterances that 'set the stage' for future interactions and contextualize both the situation as well as the roles of those involved. Through these elements, participants develop a *relational engagement*: They develop strong 'high-quality' relationships that motivate them to act more openly and develop awareness for each other, and for the responsibility for a given task of everyone involved, including themselves. Engaging relationally with each other, participants of a productive dialog accept a certain amount of suspension and uncertainty. At the same time, a productive dialog enables participants to depart from their accustomed ways of thinking and acting and to reconceptualize a given situation. The four elements of a productive dialog enable others to accept the distinctions that individuals draw; hence, they are necessary prerequisites for knowledge creation.

In contrast, an unproductive dialog builds on by what Tsoukas (2009a) calls *calculated engagement* (p. 945). Although he does not elaborate the specific elements of such calculated engagement himself, we can infer four distinctive features by juxtaposing them against the elements of a relational engagement. First, if the dialog bases on calculated engagement,



participants engage in the dialog only for self-serving reasons and only limitedly engage in cooperative behavior, in order to protect or maximize individual gains. In this sense, unproductive dialogs build on an *individual*, rather than a collective *engagement*: Participants do not develop a common language; instead, individual contributions to the dialog remain fragmented and participants engage in parallel conversations. Second, in contrast to a productive dialog, an unproductive dialog may also hold the potential for *unconstrained novelty*. This is because the interactions within such dialog are not constrained by participants' emerging frames of reference: Individual distinctions are not contextualized, and do not build up on each other. Given the distinctions' lack of connectedness to existing frames in the dialog, the new distinctions might not be linked directly with the preceding knowledge and thus is likely to be just shared among participants. Yet, as knowledge is shared, not co-created, any kind of novel insights might emerge for the individual actors. Third, an unproductive dialog may potentially facilitate a *radical emergence* of organizational knowledge. This is particularly because participants may provide distinctions that depart significantly from existing knowledge. This, however, may not necessarily contribute to the creation of new collective knowledge, as the given input may create too much perplexity as other participants lack a sense of shared understanding. Fourth, we suggest that dialogical interaction that emerges in an unproductive dialog may facilitate '*anarchistic*' *creativity* in the sense that individuals may draw on utterances that randomly assign roles to participants and do not aim at contextualizing future situations. Anarchistic creativity may thus not provide an index for future interactions, but leads to unrestricted creativity with regard to the way individuals perceive interactions. In the light of the characterizing elements of an unproductive dialog, we conclude that unproductive dialogs based on calculated engagement enable the creation of individual knowledge. Yet, such dialog does not lead to the creation of new collective, organizational knowledge.

Having established the distinction the modes of interactions – relational and calculative engagement – that relate to productive and unproductive dialogs, and that lead to different kinds of knowledge (organizational vs. individual knowledge) we now turn towards the application of the dialogic theory of knowledge creation to the particular context of social media.

### **Organizational knowledge creation in social media**

In the following, we draw on the dialogical approach to knowledge creation as presented above in order to examine in what way different dialogs in social media allow for the creation of knowledge. Specifically, we particularly elaborate how the affordances of social media

(Leonardi & Vaast, 2016; Treem & Leonardi, 2012) contribute to the emergence of productive dialogs, relational engagement and thus to organizational knowledge creation. Conversely, we also elaborate how social media affordances contribute to the emergence of unproductive dialogs, calculated engagement, and thus to individual knowledge creation. We specifically draw on the affordances of social media as these distinguish social media from other kinds of communication technologies, as there is a consistent high distribution of these affordances regardless of the context they are embedded in, and because these affordances are supposed to be crucial for knowledge processes (Treem & Leonardi, 2012).

In core, we suggest that while all four key affordances of social media – visibility, editability persistence and association – are important for knowledge creating dialogs, they have different relevance for productive and unproductive dialogs. Table 1 gives an overview of how the four key affordances of social media support or restrict productive or unproductive dialogs to emerge based on the features of calculated and relational engagement. In the following, we will focus on the supporting and restricting affordances for each element of the two types of dialogs and leave those affordances that do not contribute particularly to specific features of engagement aside (marked as “not specifically important for...” in the table).

As shown above, a productive dialog bases on collaborative emergence, constrained novelty, incremental emergence and indexical creativity; whereas an unproductive dialog is constituted by the elements of individual emergence, unconstrained novelty, radical emergence and anarchistic creativity. As we will show, all social media affordances have an impact on these elements, however in different ways.

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### Productive dialogs in social media

The first element of a productive dialog, *collaborative emergence* enables participants to develop a shared language and an understanding of particular knowledge issues through continuous interaction. The social media affordance of *association* mainly supports this element. Participants who share an interest in specific knowledge issues can build relationships with each other, based on the participants’ associations with particular knowledge issues. By engaging with each other based on the associations they have made, participants can develop a shared language to talk about a particular knowledge issue and develop a shared understanding

of it. *Collaborative emergence* is further facilitated by the affordance of editability. Changing existing contributions allows to specify the shared language that is used to talk about knowledge issues through new, fine-grained distinctions; thus leading to further co-creation of knowledge. Collaborative emergence is also facilitated by the affordance of persistence. Making existing knowledge persist over time, social media allow participants to collaboratively create shared understandings of a given task over extensive periods of time.

Second, *constrained novelty*, i.e. new contributions are constrained by constantly emerging frames that also influence future dialogs, is mainly afforded by persistence. Frames of reference emerge through ongoing dialogs. Thus, previous dialogs contribute to initial frames that are constantly reproduced or adapted through present dialogs. Yet, while novel insights emerge from ongoing productive social media dialogs, these insights are constrained by shared frames of reference. The affordance of editability thus facilitates constrained novelty. By editing previous contributions, participants contribute to emerging frames. As they might discuss edits of contributions, participants start to develop a sense of what others think and know about particular knowledge issues and thus jointly develop particular frames. As described above, these frames constrain novelty.

Third, the element of *incremental emergence*, which refers to creating novel knowledge incrementally, builds on the social media affordance editability. By being able to edit previous contributions around particular knowledge issues, and thus creating new distinctions, participants adapt and add new insights to these knowledge issues. However, as shared frames shape how knowledge issues are adapted or extended, new knowledge can only emerge incrementally. Persistence facilitates incremental emergence. Previous dialogs about particular knowledge issues shape how participants engage in a dialog about new knowledge issues. Because past interactions and in particular, frames that emerged from previous dialogs, determine present dialogs, the affordance persistence contributes to the incremental creation of new knowledge.

Fourth, the dialog element *indexical creativity*, which suggests that utterances contextualize situations and assign particular roles for those involved in the dialog, is mainly afforded by visibility. As visibility makes contributions, i.e. utterances, but also graphics, or other textual symbols about particular knowledge issues visible to other participants, it allows them to contextualize or categorize contributions for future interactions. Hence, *indexical creativity* is facilitated by the social media affordance editability. By being able to edit content available through social media, participants specify the context in which a dialog takes places. In

addition, *indexical creativity* is facilitated by the affordances persistence and association. With regard to persistence, previous dialogs frame a particular context in which these dialogs build on and assign roles to particular participants involved in them. In turn, these roles and contextualization might influence contextualization and roles of present and future dialogs. Moreover, if participants make associations based on shared interest in particular knowledge issues, these associations allow other participants who talks to whom about particular issues and who is particularly knowledgeable with a certain issue. Thus, associations can facilitate indexical creativity by assigning roles to particular people (e.g. “knowledgeable person about a certain issue”) and by locating certain participants and their contributions in relation to particular knowledge issues.

#### *Unproductive dialogs in social media*

As mentioned above, an unproductive dialog relies on the following four elements that are characteristic for calculated engagements: individual emergence, unconstrained novelty, radical emergence and anarchistic creativity. The first element of an unproductive dialog, *individual emergence*, i.e. individual contribution to the dialog remain fragmented so that the dialog is beneficial for individual, self-serving reasons, is mainly afforded by the social media affordance of visibility. Put differently, visibility is a prerequisite for the emergence of individual knowledge. By making knowledge visible, individual participants can draw on other’s knowledge to enhance their individual knowledge base. The element of individual emergence is further supported by the affordances of persistence and association. Social media affords participants to enhance their knowledge by viewing and searching for previous contributions (with regard to the topic of interest), as knowledge remains persistently available. Association supports individual emergence by allowing participants to find information based on participants’ associations to particular content or information, and thus to develop new distinctions.

The second element *unconstrained novelty*, which suggests that any kind of novel insights for the individual actor emerges as a dialog is not constrained by emerging frames of reference, is mainly afforded by visibility in social media. Similarly, to individual emergence, visibility affords participants to enhance their own knowledge in novel ways by drawing on others’ knowledge and use it for distinction making. As there is no shared frame that restricts interaction and knowledge exchange within that dialog, potentially any kind of novel insights can emerge for the individual actor. *Unconstrained novelty* is facilitated by the affordance of association. To enhance one’s own knowledge in novel ways, participants share knowledge

based on their associations with particular knowledge issues. In the case of *unconstrained novelty*, the affordance of editability is counterproductive. If previous contributions are edited, continuous interactions among participants might emerge, which lead to co-creation of knowledge issues and potentially shared understandings about them. Yet, this process is likely to restrict the degree of novelty of knowledge created. Co-creation of knowledge issues does not allow for the emergence of any kind of radically novel insights for the individual actor. Thus, novelty is constrained by co-creation.

The third element of an unproductive dialog is the *radical emergence* of new individual knowledge. It is mainly supported by the social media affordance visibility. Similarly to unconstrained novelty, visibility affords participants to enhance their own knowledge in potentially radical ways by drawing on others' knowledge. As there is no shared frame of reference that restricts the content of contributions and knowledge exchange, potentially entirely new insights can emerge for the individual actor. *Radical emergence* can also be facilitated by persistence. Based on previous contributions, individual participants can enhance their knowledge in radical ways. As with unconstrained novelty, editability can restrict *radical emergence*: Editability is likely to restrict novelty as co-creation of knowledge issues does not allow for the emergence of radically new insights for the individual actor. In this case, *radical emergence* is constrained by co-creation.

Fourth, and finally, the element of *anarchistic creativity* entails that a dialog bases on unbounded creativity. The participants do not aim at contextualizing knowledge; hence, this element is mainly driven by the social media affordance association. Social media enable individuals to associate freely with other participants as well as knowledge issues, which can lead to creatively enhancing one's own knowledge. As distinctions are not contextualized or situations indexed, participants can randomly take on roles that might foster their creative thinking about particular knowledge issues. *Anarchistic creativity* is further facilitated by the affordance of visibility. If participants are able to see how other individual actors engage in dialogs about particular knowledge issues, they can creatively combine these insights with their own knowledge to come up with new insights for their own purposes.

## **Discussion**

Based on the dialogic approach to knowledge creation (Baralou & Tsoukas, 2015; Tsoukas, 2009a, 2009b), we argue that only when individuals engage in productive social media dialogs, they can create collective knowledge. In particular, creating a productive dialog is based on relational engagement among participants in social media. Importantly, the features of relational engagement are facilitated by social media affordances in different ways. In the

following, we will discuss the implications of this argument for our existing understanding of knowledge creation in social media, but also for new forms of knowledge creation, in particular online communities. In addition, we will provide some practical implications for the role of organizations in facilitating knowledge creation.

### Implications for knowledge creation in social media and online communities

The findings of our study have implications for the existing literature on organizational knowledge creation as well as for the social media affordance literature. First, in contrast to the initial studies that discuss the role and function of social media for organizational knowledge creation (Chalkiti & Sigala, 2008; Culnan et al., 2010; Hemsley & Mason, 2013; Kallinikos & Tempini, 2014; Voigt & Ernst, 2010; Yates & Paquette, 2011), our study shows that knowledge is a social construct (Berger & Luckmann, 1991). An understanding of knowledge as social construction challenges the idea that the creation of knowledge requires the diffusion of information amongst people. Instead, the construction, or creation, of knowledge requires a social process based on conversational exchange between those involved (Kogut & Zander, 1992; Tsoukas, 2009a). As a consequence, social media are not conceptualized as “a type of transaction processing system” (Culnan et al., 2010) that facilitate knowledge creation by a linear information exchange amongst various actors. Although scholars might want to adopt a more technical view on knowledge (for some particular reason), this view restricts their ability to explain knowledge creation in social media. In this sense, our study argues for a more sociologically informed conceptualization of knowledge, which underpins the *social* dynamics through which new knowledge emerges.

Second, our study shows that the affordances of social media indeed contribute to the creation of new knowledge (Leonardi & Vaast, 2016; Treem & Leonardi, 2012; Leonardi & Bailey, 2016). However, our study points out that not all affordances contribute to knowledge creation equally and that some affordances contribute to different “outcomes” with regard to knowledge creation (i.e. either to individual or collective knowledge creation): Collective knowledge creation is mainly based on editability and persistence. These affordances either facilitate or act as a prerequisite for the features of relational engagement. As such, the social media affordances editability and persistence provide the building blocks upon which relational engagement and thus, productive dialogs, can emerge. By contrast, individual knowledge creation is mainly based on visibility, which facilitates or acts as a prerequisite for the features of calculated engagement. As such, visibility provides the main basis for calculated engagement and thus, unproductive dialogs. In addition, we have shown that in the case of individual knowledge

creation, editability is even counterproductive as it restricts novelty and radical emergence. These findings extend our understanding of social media affordances by showing that these affordances are relevant to all kinds of social media contexts in general but their particular role depends on the purpose for which social media is used. If social media is used for collective knowledge creation purposes, different affordances are valuable than for individual knowledge creation.

Third, our study provides implications for new forms of organizing collaborative knowledge creation, in particular online communities. Studies on online communities found that communities are a particularly fruitful form to create knowledge (Füller et al., 2006; Mahr & Lievens, 2012). More specifically, they draw on knowledge creation theory (Nonaka & Takeuchi, 1995; Tsoukas, 2009a; Von Krogh et al., 2000) to show that communities foster knowledge creation through conversion of explicit and tacit knowledge (Faraj et al., 2016). Our study extends these insights by referring to a dialogical perspective on knowledge creation, which allows researchers to focus on the social modes of engagement that underlie these knowledge conversion processes (Tsoukas, 2009a). In particular, and as already indicated above, a relational engagement between dialog participants resembles modes of engagements of (online) communities: Through relational engagement individuals engage in relationship building and develop shared understandings and rules, which enables the development of collective expertise. Thus, relational engagement might facilitate a sense of community, which emerges from shared or joined activities (Feldman, Khademian, Ingram, & Schneider, 2006). Specifically, our study extends existing findings on knowledge creation in online communities by revealing the particular elements of relational engagement. These elements might help to get a better understanding of the dialogical conditions under which knowledge conversion processes take place.

#### Practical implications for organizations

Our study also provides some practical implications for the role of organizations in facilitating knowledge creation in social media. As we have shown, if organizations use social media for knowledge creation purposes, the interaction among participants needs to take on the form of a productive dialog, which is based on relational engagement. This poses two dilemmas for organizations: The dilemma of control as well as the dilemma of openness. Organizations face the dilemma of control as they typically want to steer knowledge creation in social media, for example, through the introduction of enterprise social media, and the explicit invitation for organizational members to use them. Yet, if they try to steer their member's social media usage,

they might hinder the “natural” emergence of relational engagement by intervening in participants’ interactions. As relational engagement emerges from participants’ willingness to interact with certain groups of individuals who share a common interest or goal to collaboratively share knowledge, knowledge creation on social media is difficult to steer on behalf of the organizations even if organizations might want to direct interaction to gain certain outcomes - such as, for example, innovation. This dilemma might also explain failure of the use of social media in some organizational contexts. The exercise of organizational control limits the ability to create knowledge through relational engagement because individuals are asked to adapt their social media behavior according to organizational, and often corporate demands (Stohl, Etter, Banghart, & Woo, 2017). However, while organizations may not be able to enforce the emergence of knowledge creation, they might be able to facilitate the emergence of productive dialogs by appointing community managers, who actively encourage a relational engagement between individuals (Kane, Fichmann, Gallagher, & Glaser, 2009).

In addition, organizations might face the dilemma of openness when aiming to use social media for knowledge creation purposes. On the one hand, organizations want to increase their organizational members’ participation to facilitate knowledge creation in social media; on the other hand, however, productive dialogs in social media hinder participation beyond a certain circle of participants and thus tend to exclude, rather than include organizational members. This is because relational forms of engagement resemble forms of engagement in communities. Online communities, for example, are characterized by flat hierarchies and fluid membership; yet, their openness is often restricted through implicit rules and norms and processes of self-selection (Shaikh & Vaast, 2016). Those who do not follow the rules and norms of the community, or those who are not recognized as ‘equal’ will not feel inclined to take part in the community (Levina & Arriaga, 2014). Thus, openness might increase the likelihood that (at least some) participants in social media engage relationally, productive dialogs limit openness towards including other organizational members. Hence, motivating new participants from different parts of the organization to engage in productive dialogs remains a challenge, even in social media (Ransbotham & Kane, 2011).

Generally, these implications for organizations do not imply that organizations necessarily want to create knowledge by using social media. Instead, they might simply aim at seeking input or aggregate information (Fieseler et al., 2009; Hautz, Seidl, & Whittington, 2017; Whelan et al., 2013). In this sense, unproductive social media dialogs should not be disregarded as ‘useless’ social interactions for organizations. While they do not facilitate the creation of collective knowledge, these dialogs may enable individuals to enhance and share their individual



knowledge. Our study shows that if organizations aim to gain input and foster knowledge sharing, visibility - which affords that individual knowledge become visible in social media – is an important mean.

### **Conclusion and contribution**

The new ways social media afford knowledge sharing in and around organizations has garnered increasingly attention from scholars in the past (Majchrzak, Faraj, Kane, & Azad, 2013; Leonardi & Vaast, 2016; Panahi, Watson, & Partridge, 2013). However, the social media debate currently lacks an understanding of how social media afford the creation of new organizational knowledge. Thus, we draw on the particular affordances of social media to discuss the social interactions through which knowledge is created in social media. To examine collective knowledge creation, we particularly draw on dialogic theory of knowledge creation (Tsoukas, 2009) as social-media facilitate particularly dialogic interactions (Glozer et al., 2018). Based on the dialogic knowledge creation theory, we argue that only when individuals engage in productive social media dialogs, they can create collective knowledge. In particular, we show that productive dialogs in social media emerge from relational engagement. This form of engagement is mainly facilitated by the affordances of editability and persistence as these affordances allow participants the develop a shared understanding over time.

With these findings, our study contributes to two streams of literature. First, we contribute to the literature on knowledge creation in social media by introducing a dialogical perspective on knowledge creation that enhances our understanding of the social dynamics underlying the creation of collective knowledge in social media. Relatedly, we contribute to our understanding of the role of the social-media affordances in knowledge creation by showing that the relevance of each of these affordances depends on the purpose for using social media. We also point out the affordances that are particularly influential in individual and collective knowledge creation. Second, we contribute to literature on online communities by introducing a dialogical approach to knowledge creation that extends our understanding of the social conditions under which knowledge is created in online communities.

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TABLE 1: Productive and unproductive dialogs in social media

Social interaction mechanisms/ Social media affordances	Productive dialog (Mode of engagement: Relational engagement)				Unproductive dialog (Mode of engagement: Calculated engagement)			
	Collaborative emergence	Constrained novelty	Incremental emergence	Indexical creativity	Individual emergence	Unconstrained novelty	Radical emergence	Anarchistic creativity
<b>Visibility:</b> Knowledge becomes more visible	Not specifically important for collaborative emergence	Not specifically important for constrained novelty	Not specifically important for incremental emergence	<i>Main affordance: visibility allows participants to contextualize contributions</i>	<i>Main affordance: Participants draw on others' knowledge to enhance own knowledge</i>	<i>Main affordance: Participants can enhance their own knowledge in novel ways by drawing on others' knowledge</i>	<i>Main affordance: Radically new individual knowledge can emerge based on others' knowledge</i>	Facilitates: New creative ways of thinking about issues can be created based on others' knowledge
<b>Editability:</b> asynchronous adaptation/editing of content	Facilitates: Edits specify shared language and contribute to co-creation of issues	Facilitates: Edits contribute to emerging frames that restrict novelty	<i>Main affordance: Adaptations to existing contributions restricted by frames so that new knowledge emerges incrementally</i>	Facilitates: Edits further specify the context, in which the contributions take place	Not specifically important for individual emergence	Restricts: Through editing participants start to develop frames of reference that restrict unconstrained novelty	Restricts: Edits contextualize contributions, which restricts the emergence or radically new individual knowledge	Not important for anarchistic creativity

Social interaction mechanisms/ Social media affordances	Productive dialog (Mode of engagement: Calculated engagement)				Unproductive dialog (Mode of engagement: Calculated engagement)			
	Collaborative emergence	Constrained novelty	Incremental emergence	Indexical creativity	Individual emergence	Unconstrained novelty	Radical emergence	Anarchistic creativity
<b>Persistence:</b> view and search records of previous contributions	Facilitates: Allows participants to collaboratively develop shared understandings over time	<i>Main affordance: Previous contributions frame new ones</i>	Facilitates: Previous contributions determine future contributions as they are based on particular frames	Facilitates: Previous contributions frame the context, in which future contributions are made	Facilitates: Participants draw on previous contributions to enhance their own knowledge	Not important for unconstrained novelty	Facilitates: Participants draw on previous contributions to enhance their own knowledge in radical ways	Not important for anarchistic creativity
<b>Association:</b> enabling referencing to particular knowledge issues and people	<i>Main affordance: Associations allow participants to engage in a common language by referring to each other, and associating each other with a particular issue</i>	Not specifically important for unconstrained novelty	Not specifically important for incremental emergence	Facilitates: Associations allow participants to locate other participants and assigning roles; but also to contextualize their contributions within participants' networks	Facilitates: Associations allow participants to exchange knowledge and draw on the knowledge of others	Facilitates: Participants can loosely make associations to each other to exchange knowledge and enhance their own knowledge	Not specifically important for radical emergence	<i>Main affordance: Participants can freely associate with each other to derive new creative insights; roles can be assigned randomly</i>